CLAIMS

What is claimed is:

1. System for acquiring measured values of at least one of chemical and physical variables representing the state of a material during an operating process being carried out on the material, said system being arranged on or in the material so that the operating process remains unaffected by the system, the system comprising:

at last one sensor which records at least one of a chemical variable and a physical variable during the operating process and generates signals.

2. A system as in claim 1 further comprising:

at least one circuit for processing said signals; and

a power supply for providing power for said at least one circuit.

3. A system as in claim 2 wherein said at least one circuit comprises an integrated circuit which conditions said signals to obtain measured values, and a memory for storing said values so that the measured values can be read out of the memory by means for reading the measured values.

4. A system as in claim 3 wherein said at least one circuit further comprises an integrated circuit which transmits said measured values, said means for reading the measured values comprising at least one receiver which receives the measured values transmitted.

5. A system as in claim 2 wherein said power supply comprises one of a battery and a chargeable capacitor.

6. A system as in claim 1 wherein said at least one sensor is at least one of strain gauges, temperature sensors, moisture sensors, and pH sensors.

7. A system as in claim 1 wherein said at least one sensor records said at least one of a chemical and a physical variable in a remanent manner, whereby at least one of minimum and maximum values of said variable can be evaluated.

8. A system as in claim 1 wherein said at least one sensor comprises a strain element which plastically deforms under tensile loading, whereby the tensile stress can be evaluated.

9. A system as in claim 1 wherein said at least one sensor comprises a sensor which records said measured value reversibly and so that it can be evaluated visibly, said system further comprising a camera system which can read out the measured value record by the sensor.

10. A system as in claim 9 wherein said sensor which records said measured value reversibly is an elastically deformable strain element which constricts under tensile loading, whereby tensile stress can be determined from the extent of constriction read out by the camera system.

11. A system as in claim 9 wherein said sensor which records said measured value reversibly is a temperature sensor which indicates the temperature by means of color changes.

12. A system as in claim 1 wherein said material is a printing material web comprising paper, said system being at least partially embedded in said paper.

13. A system as in claim 1 wherein said material is a printing material web, said system being bonded to said web.

14. A system as in claim 1 wherein said system can be removed from said material for evaluation.

15. A system as in claim 1 further comprising at least one of a closed loop and an open loop control for a finishing process which is part of said operating process, said signals being incorporated directly into said control for said finishing process.